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EXAMINER	
STARKS, WILBERT L	
ART UNIT	**PAPER NUMBER**
2121	

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/751,366	CHAN, Stella et al
Examiner	**Art Unit**
Wilbert L. Starks, Jr.	2121

-- The MAILING DATE of this c mmunicati n appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *29 Dec 2000*.

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under ***Ex parte Quayle***, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-80* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-80* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 U.S.C. § 101

1. 35 U.S.C. §101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

the invention as disclosed in claims 1-80 is directed to non-statutory subject matter.

2. Regardless of whether any of the claims are in the technological arts, none of them is limited to practical applications in the technological arts. Examiner finds that *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994) controls the 35 U.S.C. §101 issues on that point for reasons made clear by the Federal Circuit in *AT&T Corp. v. Excel Communications, Inc.*, 50 USPQ2d 1447 (Fed. Cir. 1999). Specifically, the Federal Circuit held that the act of:

> ...[T]aking several abstract ideas and manipulating them together adds nothing to the basic equation. *AT&T v. Excel* at 1453 quoting *In re Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir. 1994).

Examiner finds that Applicant's "information identifying ... users that are members of the group" and "information identifying ... items that are members of the group" references are just such abstract ideas.

3. Examiner bases his position upon guidance provided by the Federal Circuit in *In re Warmerdam*, as interpreted by *AT&T v. Excel*. This set of precedents is within the same line of cases as the *Alappat-State Street Bank* decisions and is in complete agreement with those decisions. *Warmerdam* is consistent with *State Street*'s holding that:

> **Today we hold that** *the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price*, **constitutes a practical application of a mathematical algorithm, formula, or calculation because it produces 'a useful, concrete and tangible result" –** *a final share price momentarily fixed for recording purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.* **(emphasis added)** *State Street Bank* **at 1601.**

4. True enough, that case later eliminated the "business method exception" in order to show that business methods were not per se nonstatutory, but the court clearly *did not* go so far as to make business methods *per se statutory*. A plain reading of the excerpt above shows that the Court was *very specific* in its definition of the new *practical application*. It would have been much easier for the court to say that "business methods were per se statutory" than it was to define the practical application in the case as "...the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price..."

5. The court was being very specific.

6. Additionally, the court was also careful to specify that the "useful, concrete and tangible result" it found was "a final share price momentarily fixed for recording

purposes and even accepted and relied upon by regulatory authorities and in subsequent trades." (i.e. the trading activity is the further practical use of the real world monetary data beyond the transformation in the computer – i.e., "post-processing activity".)

7. Applicant cites no such specific results to define a useful, concrete and tangible result. Neither does Applicant specify the associated practical application with the kind of specificity the Federal Circuit used.

8. Furthermore, in the case *In re Warmerdam*, the Federal Circuit held that:

> ...[T]he dispositive issue for assessing compliance with Section 101 in this case is whether the claim is for a process that goes beyond simply manipulating 'abstract ideas' or 'natural phenomena' ... As the Supreme Court has made clear, '[a]n idea of itself is not patentable, ... *taking several abstract ideas and manipulating them together adds nothing to the basic equation*. In re Warmerdam 31 USPQ2d at 1759 (emphasis added).

9. Since the Federal Circuit held in *Warmerdam* that this is the "dispositive issue" when it judged the usefulness, concreteness, and tangibility of the claim limitations in that case, Examiner in the present case views this holding as the dispositive issue for determining whether a claim is "useful, concrete, and tangible" in similar cases. Accordingly, the Examiner finds that Applicant manipulated a set of abstract "information identifying ... users that are members of the group" and "information identifying ... items that are members of the group" to solve purely algorithmic problems in the abstract.

10. Since the claims are not limited to exclude such abstractions, the broadest reasonable interpretation of the claim limitations includes such abstractions. Therefore, the claims are impermissibly abstract under 35 U.S.C. §101 doctrine.

11. Since *Warmerdam* is within the *Alappat-State Street Bank* line of cases, it takes the same view of "useful, concrete, and tangible" the Federal Circuit applied in *State Street Bank*. Therefore, under *State Street Bank*, this could not be a "useful, concrete and tangible result". There is only manipulation of abstract ideas.

12. The Federal Circuit validated the use of *Warmerdam* in its more recent *AT&T Corp. v. Excel Communications, Inc.* decision. The Court reminded us that:

> Finally, **the decision in In re Warmerdam**, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994) **is not to the contrary**. *** The court found that the claimed process did nothing more than manipulate basic

> mathematical constructs and concluded that '**taking s veral abstract ideas and manipulating them together adds nothing to the basic equation**'; hence, the court held that the claims were properly rejected under §101 ... Whether one agrees with the court's conclusion on the facts, **the holding of the case is a straightforward application of the basic principle that mere laws of nature, natural phenomena, and abstract ideas are not within the categories of inventions or discoveries that may be patented under §101**. (emphasis added) AT&T Corp. v. Excel Communications, Inc., 50 USPQ2d 1447, 1453 (Fed. Cir. 1999).

13. Remember that in *In re Warmerdam*, the Court said that this was the dispositive issue to be considered. In the *AT&T* decision cited above, the Court reaffirms that this is the issue for assessing the "useful, concrete, and tangible" nature of a set of claims under 101 doctrine. Accordingly, Examiner views the *Warmerdam* holding as the dispositive issue in this analogous case.

14. The fact that the invention is merely the manipulation of *abstract ideas* is clear. The data referred to by Applicant's phrases "information identifying ... users that are members of the group" and "information identifying ... items that are members of the group" are simply abstract constructs that do not limit the claims to the transformation of real world data (such as monetary data or heart rhythm data) by some disclosed process. Consequently, the necessary conclusion under *AT&T, State Street* and *Warmerdam,* is straightforward and clear. The claims take several abstract ideas (i.e., "information identifying ... users that are members of the group" and "information identifying ... items that are members of the group" in the abstract) and manipulate them together adding nothing to the basic equation. Claims 1-80 are, thereby, rejected under 35 U.S.C. 101.

15. Regarding the "system" recitals in claims 59-65, and 77-80 and the presumed "product of manufacture" claims in claims 67-76, the invention is still found to be nonstatutory. Any other finding would be at variance with current case law. Specifically, the Federal Circuit held in *AT&T v. Excel*, 50 USPQ2d 1447 (Fed. Cir. 1999) that:

> Whether stated implicitly or explicitly, we consider the scope of Section 101 to be **the same regardless of the form** -- machine or process -- in which a particular claim is drafted. AT&T v. Excel, 50 USPQ2d 1447, 1452 citing In re Alappat, 33 F.3d at 1581, 31 USPQ2d at 1589 (Rader, J., concurring) (emphasis added.)

16. Examiner considers the scope of Section 101 to be the same regardless of whether Applicant *claims* a "process", "machine", or "product of manufacture". While the "system" recitals in the preambles of claims 59-65, and 77-80 make the claims ostensibly drawn to be "apparatus" claims, they are insufficient by themselves to limit the claims to statutory subject matter. Likewise, the presumed attempts to limit claims 67-76 to "product of manufacture" claims are insufficient by themselves to limit the claims to statutory subject matter. Examiner's position is clearly consistent with *Alappat,* and *AT&T* and is implicitly consistent with *Warmerdam* and *State Street.* Accordingly, those claims are also properly rejected.

Claim Rejections - 35 U.S.C. § 112

The following is a quotation of the first paragraph of 35 U.S.C. §112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-80 are rejected under 35 U.S.C. §112, first paragraph because current case law (and accordingly, the MPEP) require such a rejection if a §101 rejection is given because when Applicant has not in fact disclosed the practical application for the invention, as a matter of law there is no way Applicant could have disclosed *how* to practice the *undisclosed* practical application. This is how the MPEP puts it:

> ("The how to use prong of section 112 **incorporates as a matter of law** the requirement of 35 U.S.C. 101 that the specification disclose as a matter of fact a practical utility for the invention.... If the application fails as a matter of fact to satisfy 35 U.S.C. § 101, then the application **also fails as a matter of law** to enable one of ordinary skill in the art to use the invention under 35 U.S.C. § 112."); In re Kirk, 376 F.2d 936, 942, 153 USPQ 48, 53 (CCPA 1967) ("Necessarily, compliance with § 112 requires a description of how to use presently useful inventions, **otherwise an applicant would anomalously be required to teach how to use a useless invention.**").See, MPEP 2107.01(IV), quoting In re Kirk (emphasis added).

Therefore, claims 1-80 are rejected on this basis.

Claim Rejections - 35 U.S.C. § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

18. Claims 1-2, 7-16, 26-34, 41-42, 44-75, and 77-80 are rejected under 35 U.S.C. §102(b) as being anticipated by Brown et al. (U.S. Patent Number 5,557,686; dated 09/17/1996; class 382; subclass 115). Specifically:

Claim 1

Claim 1's "retrieving information **identifying**, for each of a plurality of groups, users that are members of the group;" is anticipated by Brown et al, col. 2, lin. 3-7, where it recites:

> Accordingly, one object of this invention is to provide a method and apparatus for verifying the authenticity of a user of a system having a low imposter pass rate, a low false alarm rate, while only requiring a small number of keystrokes from the user.

Claim 1's "for each group, **analyzing properties** of the members of the group to identify properties that distinguish users that are members of the group from users that are not members of the group, the analyzed properties relating to interactions with the subject Web site undertaken by users;" is anticipated by Brown et al, col. 2, lin. 22-25, where it recites:

> The self-organizing network outputs purified samples of the authorized user which are similar in nature to each other while discarding samples of the user which are not similar.

Claim 1's "to **displaying the properties** identified as distinguishing members of the selected group from users that are not members of the selected group;" is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of

> method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 1's "**receiving** user input specifying a name for the selected group; and" is anticipated by Brown et al, claim 3, where it recites:

> 3. A method for verifying whether a user of a system is authorized using keystroke information according to claim 2, wherein the purifying step uses a self-organizing neural network to group said imposter training signals and said user training signals into clusters having similar keystroke characteristics.

Claim 1's "**persistently storing** the specified name in a manner that associates the specified name with the selected group, enabling the specified name to be displayed in conjunction with the selected group at a future time." is anticipated by Brown et al, col. 6, lin. 5-22, where it recites:

> To construct a vector representing the timing of keystroke characteristics, the terminal 100 has clock 104 connected to processor 102 so that the timing of the keystrokes can be determined. The terminal 100 also contains components such as host interface 106 for connecting the terminal to the host, a RAM 108, a ROM 110, a system bus 112, a keyboard interface 114 and an optional monitor interface 116 connected to optional monitor 118, for example. Processor 102 and clock 104 are used to construct the vector representing the keystroke characteristics of the user. The vector representing the keystroke characteristics can be sent to host 112 so that host 112 can determine whether the user is an authorized user or an imposter. Alternatively, terminal 100 might **contain the program** used to determine whether the user is **authorized or an imposter**. The present invention has been successfully tested using a data capture program utilizing the X window system running on an IBM.RTM. R/S 6000 graphics workstation.

Claim 2

Claim 2's "The method of claim 1, further comprising, for each selected 1 group, displaying with each property identified for the selected group an icon representing the property." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 7

Claim 7's "A method in a computing system for analyzing each of a plurality of groups of items, comprising:

retrieving information identifying, for each of a plurality of groups, items that are members of the group; and" is anticipated by Brown et al, col. 2, lin. 3-7, where it recites:

> Accordingly, one object of this invention is to provide a method and apparatus for verifying the authenticity of a user of a system having a low imposter pass rate, a low false alarm rate, while only requiring a small number of keystrokes from the user.

Claim 7's "for each group, analyzing attributes of the items of the group to identify attributes that distinguish items that are members of the group from items that are not members of the group." is anticipated by Brown et al, col. 2, lin. 22-25, where it recites:

> The self-organizing network outputs purified samples of the authorized user which are similar in nature to each other while discarding samples of the user which are not similar.

Claim 8

Claim 8's "The method of claim 7, further comprising, for each group, generating a characterization of the group that incorporates the attributes identified for the group." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Claim 9

Claim 9's "The method of claim 7, further comprising, for at least one selected group, displaying indications of the identified attributes in conjunction 2 with an indication of the identified group." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Claim 10

Claim 10's "The method of claim 7, further comprising, for each selected group, displaying with each attribute identified for the selected group an icon representing the attribute." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Claim 11

Claim 11's "receiving user input specifying a name for the distinguished group; and" is anticipated by Brown et al, claim 3, where it recites:

> 3. A method for verifying whether a user of a system is authorized using keystroke information according to claim 2, wherein the purifying step uses a self-organizing neural network to group said imposter training signals and said user training signals into clusters having similar keystroke characteristics.

Claim 11's "persistently storing the specified name in a manner that associates the specified name with the distinguished group, enabling the specified name to be displayed in conjunction with the distinguished group at a future time." is anticipated by Brown et al, col. 6, lin. 5-22, where it recites:

> To construct a vector representing the timing of keystroke characteristics, the terminal 100 has clock 104 connected to processor 102 so that the timing of the keystrokes can be determined. The terminal 100 also contains components such as host interface 106 for connecting the terminal to the host, a RAM 108, a ROM 110, a system bus 112, a keyboard interface 114 and an optional monitor interface 116 connected to optional monitor 118, for example. Processor 102 and clock 104 are used to construct the vector representing the keystroke characteristics of the user. The vector representing the keystroke characteristics can be sent to host 112 so that host 112 can determine whether the user is an authorized user or an imposter. Alternatively, terminal 100 might **contain the program** used to determine whether the user is **authorized or an imposter**. The present invention has been successfully tested using a data capture program utilizing the X window system running on an IBM.RTM. R/S 6000 graphics workstation.

Claim 12

Claim 12's "The method of claim 7 wherein the analyzed attributes of the items are binary attributes having one of two possible values." is anticipated by Brown et al, col. 6, lin. 5-22, where it recites:

> To construct a vector representing the timing of keystroke characteristics, the terminal 100 has clock 104 connected to processor 102 so that the timing of the keystrokes can be determined. The terminal 100 also contains components such as host interface 106 for connecting the terminal to the host, a RAM 108, a ROM 110, a system bus 112, a keyboard interface 114 and an optional monitor interface 116 connected to optional monitor 118, for example. Processor 102 and clock 104 are used to construct the vector representing the keystroke characteristics of the user. The vector representing the keystroke characteristics can be sent to host 112 so that host 112 can determine whether the user is an authorized user or an imposter. Alternatively, terminal 100 might **contain the program** used to determine whether the user is **authorized or an imposter**. The present invention has been successfully tested using a data capture program utilizing

the X window system running on an IBM.RTM. R/S 6000 graphics workstation.

Claim 13

Claim 13's "The method of claim 12, further comprising converting values of a multivalued attribute having one of more than two possible values to binary values of an analyzed binary attribute." is anticipated by Brown et al, col. 6, lin. 5-22, where it recites:

To construct a vector representing the timing of keystroke characteristics, the terminal 100 has clock 104 connected to processor 102 so that the timing of the keystrokes can be determined. The terminal 100 also contains components such as host interface 106 for connecting the terminal to the host, a RAM 108, a ROM 110, a system bus 112, a keyboard interface 114 and an optional monitor interface 116 connected to optional monitor 118, for example. Processor 102 and clock 104 are used to construct the vector representing the keystroke characteristics of the user. The vector representing the keystroke characteristics can be sent to host 112 so that host 112 can determine whether the user is an authorized user or an imposter. Alternatively, terminal 100 might **contain the program** used to determine whether the user is **authorized or an imposter**. The present invention has been successfully tested using a data capture program utilizing the X window system running on an IBM.RTM. R/S 6000 graphics workstation.

Claim 14

Claim 14's "The method of claim 12, further comprising converting values of a continuous attribute having any of a range of numerical values to binary values of an analyzed binary attribute." is anticipated by Brown et al, col. 6, lin. 5-22, where it recites:

To construct a vector representing the timing of keystroke characteristics, the terminal 100 has clock 104 connected to processor 102 so that the timing of the keystrokes can be determined. The terminal 100 also contains components such as host interface 106 for connecting the terminal to the host, a RAM 108, a ROM 110, a system bus 112, a keyboard interface 114 and an optional monitor interface 116 connected to optional monitor 118, for example. Processor 102 and clock 104 are used to construct the vector representing the keystroke characteristics of the user. The vector representing the keystroke characteristics can be sent to host 112 so that

> host 112 can determine whether the user is an authorized user or an imposter. Alternatively, terminal 100 might **contain the program** used to determine whether the user is **authorized or an imposter**. The present invention has been successfully tested using a data capture program utilizing the X window system running on an IBM.RTM. R/S 6000 graphics workstation.

Claim 15

Claim 15's "The method of claim 7 wherein the analyzed attributes of the items are multivalued attributes having one of more than two possible values." is anticipated by Brown et al, col. 6, lin. 5-22, where it recites:

> To construct a vector representing the timing of keystroke characteristics, the terminal 100 has clock 104 connected to processor 102 so that the timing of the keystrokes can be determined. The terminal 100 also contains components such as host interface 106 for connecting the terminal to the host, a RAM 108, a ROM 110, a system bus 112, a keyboard interface 114 and an optional monitor interface 116 connected to optional monitor 118, for example. Processor 102 and clock 104 are used to construct the vector representing the keystroke characteristics of the user. The vector representing the keystroke characteristics can be sent to host 112 so that host 112 can determine whether the user is an authorized user or an imposter. Alternatively, terminal 100 might **contain the program** used to determine whether the user is **authorized or an imposter**. The present invention has been successfully tested using a data capture program utilizing the X window system running on an IBM.RTM. R/S 6000 graphics workstation.

Claim 16

Claim 16's "The method of claim 7 wherein the analyzed attributes of the items are continuous attributes having any of a range of numerical values." is anticipated by Brown et al, col. 6, lin. 5-22, where it recites:

> To construct a vector representing the timing of keystroke characteristics, the terminal 100 has clock 104 connected to processor 102 so that the timing of the keystrokes can be determined. The terminal 100 also contains components such as host interface 106 for connecting the terminal to the host, a RAM 108, a ROM 110, a system bus 112, a keyboard interface 114

> and an optional monitor interface 116 connected to optional monitor 118, for example. Processor 102 and clock 104 are used to construct the vector representing the keystroke characteristics of the user. The vector representing the keystroke characteristics can be sent to host 112 so that host 112 can determine whether the user is an authorized user or an imposter. Alternatively, terminal 100 might **contain the program** used to determine whether the user is **authorized or an imposter**. The present invention has been successfully tested using a data capture program utilizing the X window system running on an IBM.RTM. R/S 6000 graphics workstation.

Claim 26

Claim 26's "A computer-readable medium whose contents cause a computing system to analyze each of a plurality of groups of items by:

retrieving information identifying, for each of a plurality of groups, items that are members of the group; and" is anticipated by Brown et al, col. 2, lin. 3-7, where it recites:

> Accordingly, one object of this invention is to provide a method and apparatus for verifying the authenticity of a user of a system having a low imposter pass rate, a low false alarm rate, while only requiring a small number of keystrokes from the user.

Claim 26's "for each group, analyzing attributes of the items of the group to identify attributes that distinguish items that are members of the group from items that are not members of the group." is anticipated by Brown et al, col. 2, lin. 22-25, where it recites:

> The self-organizing network outputs purified samples of the authorized user which are similar in nature to each other while discarding samples of the user which are not similar.

Claim 27

Claim 27's "The computer-readable medium of claim 26 wherein the contents of the computer-readable medium further cause the computing system to, for each group, generate a characterization of the group that incorporates the attributes identified for the group." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Claim 28

Claim 28's "The computer-readable medium of claim 26 wherein the contents of the computer-readable medium further cause the computing system to, for at least one selected group, display indications of the identified attributes in conjunction with an indication of the identified group." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 29

Claim 29's "displaying information identifying the selected group; and" is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 29's "in conjunction with the displayed information identifying the selected group, displaying one or more icons, each icon indicating a characteristic of members of the selected group that differentiates typical members of the selected group from typical members of the other groups." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of

> method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 30

Claim 30's "The method of claim 29 wherein a plurality of icons are displayed, and wherein the plurality of icons is displayed in an order corresponding to the extent to which the characteristic indicated by each differentiates typical members of the selected group from typical members of the other groups." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 31

Claim 31's "The method of claim 29, further comprising displaying, in conjunction with each displayed icon, an indication of the extent to which the characteristic indicated

by each differentiates typical members of the selected group from typical members of the other groups." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 32

Claim 32's "The method of claim 29, further comprising displaying, in conjunction with each displayed icon, a shape whose length indicates the extent to which the characteristic indicated by the displayed icon differentiates typical members of the selected group from typical members of the other groups." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 33

Claim 33's "The method of claim 29, further comprising displaying, in conjunction with each displayed icon, an indication of the extent to which the members of the selected group has the characteristic indicated by the icon." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 34

Claim 34's "The method of claim 29, further comprising displaying, in conjunction with each displayed icon, the percentage of the members of the selected group has the characteristic indicated by the icon." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 41

Claim 41's "The method of claim 29 wherein the characteristic indicated by a distinguished one of the displayed icons is possession of a distinguished attribute by at least a portion of the members of the selected group." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 42

Claim 42's "The method of claim 29 wherein the characteristic indicated by a distinguished one of the displayed icons is non-possession of a distinguished attribute by at least a portion of the members of the selected group." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 44

Claim 44's "The method of claim 29 wherein one of the displayed icons conveys the likeness of a shopping basket." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 45

Claim 45's "The method of claim 29 wherein the displayed icons are brand logo icons that indicate actions related to one or more brands of products." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 46

Claim 46's "The method of claim 29 wherein one of the displayed icons conveys the likeness of a shopping basket overlaid by a circle-slash symbol indicating negation." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of

> method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 47

Claim 47's "The method of claim 29 wherein one of the displayed icons indicates a high number of item purchases." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 48

Claim 48's "The method of claim 29 wherein one of the displayed icons indicates a low number of item purchases." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 49

Claim 49's "The method of claim 29 wherein one of the displayed icons conveys the likeness of a coupon." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 50

Claim 50's "The method of claim 29 wherein one of the displayed icons conveys the likeness of a coupon overlaid by a circle-slash symbol indicating negation." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 51

Claim 51's "The method of claim 29 wherein one of the displayed icons indicates a high level of coupon use." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 52

Claim 52's "The method of claim 29 wherein one of the displayed icons indicates a low level of coupon use." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 53

Claim 53's "The method of claim 29 wherein one of the displayed icons conveys the likeness of a dollar sign." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has

> not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 54

Claim 54's "The method of claim 29 wherein one of the displayed icons conveys the likeness of a dollar sign overlaid by a circle-slash symbol indicating negation." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 55

Claim 55's "The method of claim 29 wherein one of the displayed icons indicates a high level of spending." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 56

Claim 56's "The method of claim 29 wherein one of the displayed icons indicates a low level of spending." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 57

Claim 57's "The method of claim 29, further comprising displaying a control usable by a user to specify a name for the selected group." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 58

Claim 58's "The method of claim 29 wherein the selected group and the other groups are mutually exclusive, in that no item belongs to more than one group.

Claim 59

Claim 59's "A computing system for characterizing a selected group of items relative to one or more other groups of items, comprising:

a display device; and" is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

a display generation subsystem that causes to be displayed together on the display device:" is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

information identifying the selected group, and one or more icons, each icon indicating a characteristic of members of the selected group that differentiates typical members of the selected group from typical members of the other groups.

Claim 60

Claim 60's "The computing system of claim 59 wherein the display generation subsystem causes a plurality of icons to be displayed, in an order corresponding to the extent to which the characteristic indicated by each differentiates typical members of the selected group from typical members of the other groups." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 61

Claim 61's "The computing system of claim 59 wherein the display generation subsystem causes to be displayed, in conjunction with each displayed icon, an indication of the extent to which the characteristic indicated by each differentiates typical members of the selected group from typical members of the other groups." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 62

Claim 62's "The computing system of claim 59 wherein the display generation subsystem causes to be displayed, in conjunction with each displayed icon, a shape whose length indicates the extent to which the characteristic indicated by the displayed icon differentiates typical members of the selected group from typical members of the other groups." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has

> not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 63

Claim 63's "The computing system of claim 59 wherein the display generation subsystem causes to be displayed, in conjunction with each displayed icon, the percentage of the members of the selected group has the characteristic indicated by the icon." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 64

Claim 64's "One or more computer memories collectively containing a data structure identifying possible characterizations of groups of items, comprising a plurality

of indications each indicating one of a plurality of possible characterizations of groups of items, such that the contents of the data structure may be used to select possible characterization that characterize a group of items." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Claim 65

Claim 65's "The computer memories of claim 64 wherein the data structure further comprises, for each indicated possible characterization, information identifying an icon associated with the possible characterization, such that the contents of the data structure may be used to display icons associated with the selected possible characterizations." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Claim 66

Claim 66's "The computer memories of claim 64 wherein the data structure further comprises, for each indicated possible characterization, information indicating a differentiation threshold, the differentiation threshold indicating the extent to which the subject of the possible characterization must differentiate a group of items from items in other groups in order for the possible characterization to apply to the group of items, such that possible characterizations may be selected based upon satisfaction of their differentiation thresholds." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Claim 67

Claim 67's "One or more generated data signals collectively conveying a data structure indicating a characterization of a group of items, comprising information identifying one or more characteristics that distinguish typical items in the group of items from typical items outside the group of items, such that the contents of the data structure may be used to display characteristics of the group of items that characterize the group of items." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Claim 68

Claim 68's "The generated data signals of claim 67 wherein the data structure is displayable document." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 69

Claim 69's "The generated data signals of claim 67 wherein the data structure is an HTML document." is anticipated by Brown et al, col. 6, lin. 5-22, where it recites:

> To construct a vector representing the timing of keystroke characteristics, the terminal 100 has clock 104 connected to processor 102 so that the timing of the keystrokes can be determined. The terminal 100 also contains components such as host interface 106 for connecting the terminal to the host, a RAM 108, a ROM 110, a system bus 112, a keyboard interface 114

> and an optional monitor interface 116 connected to optional monitor 118, for example. Processor 102 and clock 104 are used to construct the vector representing the keystroke characteristics of the user. The vector representing the keystroke characteristics can be sent to host 112 so that host 112 can determine whether the user is an authorized user or an imposter. Alternatively, terminal 100 might **contain the program** used to determine whether the user is **authorized or an imposter**. The present invention has been successfully tested using a data capture program utilizing the X window system running on an IBM.RTM. R/S 6000 graphics workstation.

The prior art disclosure does not limit itself to a specific data structure type.

Claim 70

Claim 70's "The generated data signals of claim 67 wherein the data structure is an ActiveX control." is anticipated by Brown et al, col. 6, lin. 5-22, where it recites:

> To construct a vector representing the timing of keystroke characteristics, the terminal 100 has clock 104 connected to processor 102 so that the timing of the keystrokes can be determined. The terminal 100 also contains components such as host interface 106 for connecting the terminal to the host, a RAM 108, a ROM 110, a system bus 112, a keyboard interface 114 and an optional monitor interface 116 connected to optional monitor 118, for example. Processor 102 and clock 104 are used to construct the vector representing the keystroke characteristics of the user. The vector representing the keystroke characteristics can be sent to host 112 so that host 112 can determine whether the user is an authorized user or an imposter. Alternatively, terminal 100 might **contain the program** used to determine whether the user is **authorized or an imposter**. The present invention has been successfully tested using a data capture program utilizing the X window system running on an IBM.RTM. R/S 6000 graphics workstation.

The prior art disclosure does not limit itself to a specific data structure type.

Claim 71

Claim 71's "The generated data signals of claim 67 wherein the data structure contains an application that displays characteristics of the group of items in a display area." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 72

Claim 72's "The generated data signals of claim 67 wherein the data structure further comprises, for each identified characteristic, information identifying an icon representing the characteristic, such that the contents of the data structure may be used to display an icon representing each identified characteristic." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 73

Claim 73's "The generated data signals of claim 67 wherein the data structure further comprises information identifying an order for the identified characteristics that reflects the relative extents to which the identified characteristics distinguish typical items in the group of items from typical items outside the group of items, such that the contents of the data structure may be used to display indications of the identified characteristics in the identified order." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 74

Claim 74's "The generated data signals of claim 73 wherein the identified order for the identified characteristics reflects the relative extents to which the identified characteristics distinguish typical items in the group of items from typical items outside the group of items." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Levels of access are depicted by a listing of user/imposter determinations.

Claim 75

Claim 75's "The generated data signals of claim 67 wherein the data structure further comprises information indicating the extent to which the items in the group of items possess each of the identified characteristics." is anticipated by Brown et al, claim 6, where it recites:

> 6. A method for verifying whether a user of a system is authorized using keystroke information according to claim 1, wherein the determining step uses a distance method to determine a distance between a vector representative of the signal to be tested and a vector representative of at least one user training signal and if said determined distance is less than a predetermined distance, allowing access to the system.

Claim 77

Claim 77's "One or computer memories collectively containing a data structure indicating a characterization of a group of items, comprising information identifying one or more characteristics that distinguish typical items in the group of items from typical items outside the group of items, such that the contents of the data structure may be used to display characteristics of the group of items that characterize the group of items." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Claim 78

Claim 78's "The computer memories of claim 77 wherein the data structure further comprises, for each identified characteristic, information identifying an icon representing the characteristic, such that the contents of the data structure may be used to display an icon representing each identified characteristic." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of

> method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 79

Claim 79's "The computer memories of claim 77 wherein the data structure further comprises information identifying an order for the identified characteristics that reflects the relative extents to which the identified characteristics distinguish typical items in the group of items from typical items outside the group of items, such that the contents of the data structure may be used to display indications of the identified characteristics in the identified order." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Displaying the stored data is well within the broadest reasonable interpretation of this disclosure.

Claim 80

Claim 80's "The computer memories of claim 79 wherein the identified order for the identified characteristics reflects the relative extents to which the identified characteristics distinguish typical items in the group of items from typical items outside the group of items." is anticipated by Brown et al, col. 13, lin. 48-59, where it recites:

> Alternatively, instead of denying the user access to the system, it is possible to perform other steps. For example, if the user is determined to be an imposter, the user might be required to enter additional password type information. Alternatively, a system operator can be notified that a user has not passed the keystroke test and the system operator might verify that the person at the terminal is actually the authorized user by some other type of method. However, the invention is not limited to giving a specific response once the user is determined to be authorized or an imposter but is applicable to any type of response to the authorized user/imposter determination.

Levels of access are depicted by a listing of user/imposter determinations.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. Bakis et al. (U.S. Patent Number 6,219,639 B1; dated 04/17/2001; class 704; subclass 246) discloses a method and apparatus for recognizing identity of individuals employing synchronized biometrics.

B. Shear et al. (U.S. Patent Number 6,112,181; dated 08/29/2000; class 705; subclass 001) discloses systems and methods for matching, selecting,

narrowcasting, and/or classifying based on rights management and/or other information.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Wilbert L. Starks, Jr. whose telephone number is (703) 305-0027.

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15 October 2003

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